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ABSTRACT

Stories relating to life experiences were tape-recorded in an informal setting using natural language patterns and familiar topics in this study of peer-prepared reading materials for black adults. Three of the stories were written at different levels of difficulty according to the Automated Readability Index (ARI). The stories were presented to a predominately black high school remedial reading class where the 2 "easier" versions were more readily comprehended than was the more difficult version. Five of the tape-recorded stories were compiled in a booklet "Big Red and Other Adult Stories." The book was given to 2 groups for evaluation: graduate students in reading and a predominately black group of trainees for a federal project. Both groups rated the stories of high interest value for black adults; authentic, and suitable for use as instructional material. (Author/RS)

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FINAL REPORT

PROJECT NO. 1-D-054
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J. Peter Kincaid
John Van Deusen
Georgelle Thomas
Robert Lewis
Patricia Tanner Anderson
Linda Moody

Georgia Southern College
Statesboro, Georgia 30458

USE OF THE AUTOMATED READABILITY INDEX FOR EVALUATING PEER-PREPARED MATERIAL FOR USE IN ADULT READING EDUCATION

September 1972

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education

National Center for Educational Research and Development
(Regional Research Program)

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
National Center for Educational Research and Development

ABSTRACT

This study tested the concept of "peer-prepared" reading material for black adults and included a readability analysis. Stories relating to life experiences were tape-recorded in an informal setting; thus the resulting stories are based on natural language patterns and familiar topics.

Three of the stories were written at different levels of difficulty according to the Automated Readability Index (ARI) and presented to a predominantly black high school remedial reading class. The two "easier" versions were better comprehended than the "harder" version (as reflected in cloze scores).

Five stories were published in a booklet, "Big Red and Other Adult Stories", and given for evaluation to two groups: (1) graduate students in reading, and (2) a predominantly black group of trainees in a federally funded project. The stories were rated as being of high interest, particularly for black adults, suitable as reading instructional material for this group, and authentic.

The ARI which is collected as material is typed on a modified electric typewriter is based on word length and sentence length. The test-retest reliabilities were calculated for ARI ($r = .98$), Flesch Count ($r = .70$) and Fog Count ($r = .76$). A FORTRAN IV computer program for taking ARI Counts was also prepared.

PREFACE

Many individuals were associated with this project. The initial idea to apply the "peer-prepared" concept to this kind of reading material was that of Dr. John Van Deusen, Professor of Education at Georgia Southern College. His assistant, Miss Karen Kelley, and he collected some of the stories on tape. Mr. Junius Reed, then a member of the Continuing Education staff at Georgia Southern College, was helpful in collecting the stories and in editing them. Dr. Robert Lewis, Associate Professor of Reading at Georgia Southern College, and Miss Linda Moody of the Continuing Education staff checked the original peer-prepared stories to insure that they represented appropriate adult education reading material. Dr. Lewis constructed and administered the questionnaire given the reading specialist graduate students. Miss Moody constructed and administered the questionnaire given the trainees. Mrs. Patricia Anderson conducted the validation study as her M.A. thesis at Georgia Southern College under the direction of Dr. J. Peter Kincaid. Assistant Professor of Psychology. Dr. Georgelle Thomas, Associate Professor of Psychology at Georgia Southern College conducted the study testing the reliability of the readability forumlas. Mr. Derald Hartley, then a graduate student at Georgia Southern College, did some initial work with this reliability study. Mr. Merritt Suggs, then Assistant Professor of Mathematics at Georgia Southern College, wrote the computer program for taking the Automated Readability Index counts. Mr. Leroy Delionbach, then a graduate student at Georgia Southern College, checked out the program. Mr. Robert Roettele, engineer with the Human Resources Laboratory at Wright-Patterson Air Force Base, designed the Automated Readability Index tabulator and built the tabulator and modified the typewriter used in this study.

J. Peter Kincaid
August 1972

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SUMMARY

PURPOSE AND BACKGROUND

This study tested the concept of "peer-prepared" reading material for black adults and included the use of a readability measure, the "Automated Readability Index" (ARI), to assess reading difficulty level of the peer-prepared stories. A distressingly large proportion of the adult population has deficient reading skills. This is a real handicap to these individuals and can make them less productive citizens. A review of material currently available for adult basic reading education indicated that there is a need for highly interesting material containing familiar topics and language patterns. Black adults served as subjects in this research although other ethnic or cultural groups could have been picked.

PEER-PREPARED MATERIALS

Stories produced for this project were contributed by black adults in an informal setting as they talked into a tape recorder. All stories were gathered in Georgia in such diverse places as an Augusta barber shop and a county prison. The stories were then transcribed and edited. Objectionable words("four-letter" words and ethnic slurs) were deleted or altered, proper spelling was used, and sentence structure was occasionally changed to improve clarity. Otherwise editing was kept to a minimum. The intention was that stories contributed by members of a particular ethnic or cultural group should provide interesting, familiar beginning reading material for the same group.

Five peer-prepared stories were locally published in a booklet "Big Red and Other Adult Stories" and given for questionnaire evaluation to two groups: (1) graduate students in reading, and (2) a predominantly black group of trainees in a federally funded project. The trainees were working six hours a day and receiving about two hours a day of job related reading and mathematics instruction. Both evaluation groups considered the stories to be highly interesting, particularly for black adults, suitable as basic reading instructional material for black adults and authentic.

AUTOMATED READABILITY INDEX

The ARI was used to assess the comprehensibility of the peer-prepared stories and was validated for use with the stories. The ARI is similar to other readability formulas in that it includes a measure of work difficulty (word length) and a measure of sentence difficulty (sentence length). The data for calculating the ARI is gathered automatically as material is typed on a modified electric typewriter with three micro-switches installed. These are attached to a tabulator containing three counters which measure: (1) strokes, (2) words, and (3) sentences. Grade level of the narrative material is calculated according to the multiple regression equation

$$GL = 0.50\ (wd/sn) + 4.71\ (st/wd) - 21.43$$

where:

GL = assigned grade level
wd/sn = words per sentence or sentence length
st/wd = strokes per word or work length

The stories ranged from the 3rd to the 7th grade level in reading difficulty

according to the ARI. The ARI has been found to correlate very highly with the Flesch count (.91 in one 1,400 word sample) indicating that the two formulas measure much the same thing. However, the ARI was found in the present study to have a higher test-retest reliability than the Flesch and Fog Counts with the results for the ARI, r=.98 ; for the Flesch Count, r=.70; and for the Fog Count, r=.76.

A FORTRAN IV computer program was also developed for taking ARI counts as narrative material is processed by a computer.

VALIDATION OF THE ARI FOR USE WITH PEER-PREPARED MATERIAL

Three peer-prepared stories were each rewritten at three levels of difficulty according to the ARI - 4th grade, 8th grade, and 12th grade. Every fifth word from each passage was then deleted according to the cloze procedure. A single version of each passage was then presented to a predominantly black group of remedial reading students (N=33). Results indicated that the hardest (12th grade) versions were more difficult to comprehend than the two easier versions (4th and 8th grade). Gages-MacGinities reading test scores correlated significantly with the cloze scores for all versions and all passages indicating that reading ability is related to comprehension of these particular passages.

CONCLUSIONS

The use of peer-prepared concept has obvious merit for the production of basic reading material for particular cultural or ethnic groups.

The present study dealt only with Southern adult blacks and stories produced were judged to be interesting, authentic and appropriate as reading instructional material for the same group. The peer-prepared concept might also be applied to produce reading material for other groups such as Indian adults or black high school students from northern cities.

Grading the stories with a readability index appears to be useful and the reading difficulty level of the resultant passages should not exceed the reading ability level of the intended reading audience. The ARI was shown to be a valid and efficient readability measure to use to grade the passages.

SECTION 1

INTRODUCTION

A recent study conducted by the Georgia State Department of Education cooperatively with Harvard University clearly indicates over two million adults within the state of Georgia alone are classified as illiterate. The criterion employed embraces one of functional literacy; that being, the capability of reading at a sufficient level to support the attainment of personal goals within the complexities demanded by society today. If one were to be more conservative, the combined reports clearly demonstrate that an excess of 500,000 rural and urban Georgia adults are unable to read and write at the fifth grade level.

Further review and inquiry into the training programs currently in use by adult education activities, especially those sponsored by the Southern Region Educational Board, has raised further questions pursuant to the relevancy, motivational factors and pertinence of reading materials deployed in adult education programs. A disparaging short supply of high interest reading materials is evident.

Practices reflecting utilization of current materials can best be classified as "old wine in new bottles". By-and-large adult reading materials are out-dated, reflect revised elementary school workbooks in new jackets and, in essence, fail to recognize the interest patterns, common experiences, and vocabularies suited to various groups of disadvantaged adults.

Unquestionably, there exists an urgent need to engage in extensive research and exploration applied to the development of more suitable, timely and practical materials. In turn, these new media to be employed in adult reading programs could do much to enhance existing literacy levels.

Much recent attention has also been focused on the need for ethnic education. For example, the January 1972 issue of Phi Delta Kappan concerned the imperatives of ethnic education. The entire Spring/Fall issue of the Florida FL Reporter covered the topic of language and culture in education. The need is recognized but the remedies are not yet sufficient to meet the need.

Innovations in literacy training for adults have been slow in coming. Up until recently, the materials used in training adults to read were the same as those basic readers used in teaching children. James Olsen (1965) states that the meager attempts to teach illiterate adults have been so fragmented, diversified, and informal that publishers have been discouraged from investing money in instructional materials for adults. He advocates the packaging of materials which can be used flexibly. The emphasis of these materials should be on reading, language arts, and number skills which will be encountered on the job. For those adults who are alienated by printed materials, audiovisual methods could be used. Regardless of type, materials used should be mature, concrete, practical, and direct to hold the interest of the adult learner. The language used should follow colloquial speech, and a sentence rather than word approach should be followed.

RECENT INNOVATIONS IN ADULT LITERACY TRAINING

One recent innovation in literacy training for adults was "Operation Alphabet". This program, developed in Philadelphia, consisted of 100 half-hour lessons on video tape presented 5 days a week for 20 weeks. A study aid (Home Study Book) was used. Although this method has had some success, problems such as dropouts, slow learners, the unmotivated, lack of direct contact with the students and the inability to pace instruction to individual needs tended to

hold back complete success (Huus, 1968).

"Operation Wordpower" was another approach to literacy training for disadvantaged adults which is still in progress. It operates in Chicago's urban community areas and accepts any person who reads below the 5th grade level. Instruction is by means of Sullivan reading materials adapted to the Edison Responsive Environment teaching technology (called "Talking Typewriter") until the student's ability reaches the 6th grade level. At this point, the student is transferred to another program. This method has proven effective in reading improvement, but is too costly unless it can be moved to more locations and institute more effective recruitment and motivational programs (ERIC, 1970).

Another recent innovation in this area was "Operation Second Chance". This was an eight-week program conducted three hours a day, five days a week. The method used was the "language experience" approach. It was based on discussion, key words written on the board, practice with word and sound recognition of these words, and telling a story which was transcribed by the teacher and read by the class. Later the story was duplicated and given to the student for his workbook. This program met with much success (Huus, 1968).

The "language experience" approach of the concept of teaching reading through experience has been investigated by Van Allen. Up until recently, this approach has been used in teaching children to read. Lee & Allen (1963) discussed the importance of providing opportunities for the child to build his own reading materials until he develops skill and confidence in handling other materials. In this approach, the four aspects of language, listening, speaking, reading, and writing, are only different facets of the same understandings and skills. None can be taught separately and all are interrelated. Since reading is concerned with words that arouse meaningful responses based on the individual experiences of the learner, learning to read material drawn from his personal experiences should be more effective. Some language experiences suggested for use in teaching reading by this approach are sharing experiences, discussion experiences, listening to stories, telling stories, dictating, making and reading books, and writing independently. All of these language experiences are means through which personal experiences can be converted into meaningful written words whether they be in the form of labeled artwork or stories transcribed by the teacher and later used for instruction. Learning to read through experience makes it possible for each child to use his own experience background in listening and speaking as he grows toward reading maturity.

A report by Morrison and Harris (1968) described an investigation of two reading programs used with disadvantaged urban children. One program was the skills-centered approach using the basal reader method. The other was the "language experience" approach. Results showed that pupils taught by the "language experience" approach consistently scored significantly higher on reading tests.

A second study by Vilscek and Cleland (1969) reported the extended effects at the 2nd and 3rd grades of two instructional approaches: the coordinated basal language arts approach and the integrated "language experience" approach. Test results indicated higher second-year mean scores for pupils in the "language experience" approach and no significant difference between the two when tested in the 3rd grade.

PEER-PREPARED READING MATERIAL

Peer-prepared material, the type of material used in the present study, is closely related to the concept of language experience. Peer-prepared materials are true to life experiences related by members of the same cultural setting. These stories are then used for instructional material in adult basic reading

classes whose pupils are from the same cultural background as those who related the stories. The stories thus should hold more interest for the adult pupil and contain experiences with which the pupils identify.

Mechanistic methods of the adult literacy process are useless according to Freire (1970). He advocated, instead, a method of teaching by means of an authentic dialogue between teacher and learner which focuses on modified representations of the learner's existential situation. He mentioned a book as an example of his method of teaching. The book, You Live as You Can, was published by an Uruguayan team in 1968. The contents were obtained from tape recordings of literacy classes for urban dwellers in which an active dialogue between teacher and student was taking place. A dialogue of this sort provides an opportunity for the student to communicate actively his way of life in his own style of communication. Learning in this manner no longer necessitates a change from the student's culture to the culture of the teacher.

A number of dialect readers have been developed for teaching black dialect to black children. Joan Baratz and William Stewart of the Applied Linquistics Center in Washington, D.C., have field tested such readers in Washington, D.C. (cited in DeStafano, 1971).

Torrey (1970) stated that the main barriers to teaching and learning between cultures are the social functions and significance of language rather than the minor structural differences involved. Upon close examination of Afro-American English, Torrey found that consistent "rules" were followed in their speech. There is empirical evidence to suggest that although a person uses Afro-American dialect, he understands standard grammar as well (Labor, Cohen, Robins, & Lewis, 1968). Therefore, the main block that Torrey found to the teaching and learning between cultures was the attitude of those teaching. He found that the teachers often stigmatized students of a different culture because of their different usage of the language. An acceptance and appreciation of cross-cultural variations in language not only would broaden our understanding, but also opens the doors to cross-cultural literacy training.

READABILITY FORMULAS

The U.S. Office of Education (cited in Olsen, 1965) surveyed adult reading instructional materials and found their reading difficulty level too high.

Readability formulas are used to access the difficulty level of reading material and should be used to control the reading difficulty of adult basic reading material. Generally some measurement of word and sentence difficulty is used for this accessment. The manual counting methods used to obtain word and sentence difficulty in such widely used readability formulas as the Flesch, Dale-Chall, and Fog, however, are cumbersome and time-consuming although they have been very useful once applied (Smith & Kincaid, 1970). The Fog (as described in the Guide for Air Force Writing) and Flesch (Flesch, 1948) methods utilize syllable counting in their measurement of readability. The Dale-Chall measures word difficulty by the percentages of words per 100 words not on the Dale-Chall list of 3000 common words (Dale & Chall, 1949).

AUTOMATED READABILITY INDEX

The Automated Readability Index (ARI) was introduced by Smith and Senter (1967) to eliminate cumbersome manual methods for predicting the readability of material. This method used average word length as a measure of work difficulty

and average sentence length as a measure of sentence difficulty. These two measures are placed in a multiple regression equation and rated in terms of grade level. By use of an electric typewriter attached to a tabulator (which counts the number of strokes, words, and sentences), the data can be gathered quickly and easily.

A validation study was conducted by Kincaid, Yasutake, and Geiselhart (1967) using the ARI with U.S. Air Force technical materials (C-141 Cargo Aircraft repair manuals). Narrative passages of approximately 250 words were drawn from technical material and rewritten at three levels of difficulty, 16th, 12th, and 8th grades as determined by the ARI. Questions were presented along with these samples to a group of airmen in technical training school. It was found that passages rewritten for lower levels of difficulty were significantly easier to understand than those rewritten at the higher level. Similar findings were reported in an extension of this study by Delionbach (1971) in which the ARI was validated with technical materials using the same technical material but a different group of subjects (Army Reserve personnel).

Kincaid (1972) reported a reliability study of the Fog Count as well as the ARI. He found that the reliability of the Fog Count was low as indicated by rather large confidence intervals; whereas the reliability of the ARI was very high.

As a preliminary effort to the present study, the reading difficulty level of an adult reader was calculated using the ARI. (Tommorows : An Adult Reader, prepared by the Bank Street College of Education for the United States R&D Corporation in 1968). The book was found to be written at the 5th Grade level.

CLOZE PROCEDURE

The cloze procedure, which was chosen as the method to validate the ARI in the present study was developed by W.L. Taylor (1953). More recently Bormuth (e.g., 1966) has done much to develop the cloze procedure. The cloze procedure measures readability or understandability by having readers fill in blanks when words have been deleted from a test passage. Taylor explained the principle on which the cloze procedure works as that of "closure", the tendency to see as complete an almost-but-not-quite-complete figure. He felt that readers tended to close sentences also. Although this is a convenient measure of readability, there is one major difference between it and other readability formulas. The cloze procedure measures readability by averaging the results of a sample of readers completing the cloze sample whereas other readability formulas predict readability by measures of word and sentence difficulty (Klare, Sinaiko, & Stolurow, 1971). This eliminates the necessity of the time-consuming task of preparing test questions. Also, the cloze procedure is easy to score and can be scored by anyone since no knowledge of the subject matter is required to prepare or score the cloze test.

OBJECTIVES OF PROJECT

The present study has a number of parts to it. The first objective was to collect the peer-prepared stories. These were then edited and published in a booklet. Reading specialists and a predominantly black group of trainees in a Federally sponsored project evaluated the stories in the booklet for interest, quality, appropriateness as adult basic reading material for blacks, and authenticity.

The second objective was to validate the ARI for use with the peer-prepared stories.

The third objective was to compare the ARI with other traditional readability counts (the Flesch Reading Ease Formula and the Fog Count) for the test-retest reliability and time required for taking the readability measures.

SECTION 2

BLACK ADULT PEER-PREPARED READING MATERIALS

"Peer-prepared" stories are so named because they are based on stories contributed by members of a group and intended as the basis of reading material for other members of the same group. The preparation of the peer-prepared stories was the central part of the grant effort.

COLLECTION AND EDITING

Stories were recorded in informal settings using a portable cassette tape recorder. All stories were contributed by black adults. Initially an attempt was made to collect the stories by having a research assistant go into people's homes for a number of evenings, attempt to "break the ice" and then record the stories. The assistant is a white school teacher in her 20's who was teaching at a predominantly black school. This procedure proved unworkable as the individuals who were to tell the stories never relaxed enough to contribute stories judged to be appropriate.

The first usuable story ("Big Red") was gotten in an Augusta black barber shop by paying the barber a nominal amount to turn on the tape recorder when any of his customers were telling an interesting story. Three stories were gotten from the Waynesboro County prison in Georgia, contributed by a black male in his 20's ("The Frog in the Wood Pile," "Miss Sisson and My First Bike Ride" and "No Need A-Pecking on the Blind"). "Tracy's Footrace" was contributed by a black male, age 30, who was serving in a professional position. The story is based on an incident related to him by a teacher in the Augusta school system. This story was a slight departure from the other stories in that the background of the person contributing the story is different from the persons contributing the other stories. Other stories were collected but not further used.

Once the stories were identified as being of high interest value and a realistic portrayal of the black experience, they were transcribed and edited. The stories were edited only to remove taboo words ("four letter" words and ethnic slurs) and to improve the extent to which they could be easily understood. Grammar was left alone for the most part so the final edited stories contain a mixture of "black" grammar and "proper" grammar. There has been much current interest in Negro dialect, but the primary interest in editing the stories in Appendix A was to produce highly interesting stories rather than to preserve stories containing only pure Negro dialect. Proper spelling was used throughout, i.e. "because" was used even though the black speaker contributing the story would have said "'cause". In future efforts, an attempt might well be made to produce peer-prepared stories with pure dialect.

Two stories ("Big Red" and "Sterling and Robbie") contained so many slang words that a glossary of slang terms were prepared for each story. These are also contained in Appendix A. The edited versions of the stories and the glossaries were checked by a black knowledgeable in adult literacy training, to insure that the language was authentic. Two reading specialists checked the stories to insure that they would be useful as adult basic reading material.

The stories were also graded using the Automated Readability Index and their reading difficulty levels ranged from the 3rd to the 7th grades. The grade levels of difficulty of each story follows the story in Appendix A.

The stories were locally published in a booklet, "Big Red and Other Adult Stories" which was illustrated with cartoon-like drawings. The booklets have been circulated to be used in reading education classes and for evaluation by reading specialists. Informal feedback has been almost completely favorable. The "Big Red..." booklet was also given to two groups at Georgia Southern College for formal evaluation: (1) a graduate school class of reading specialists and (2) a group of predominantly black trainees.

READING SPECIALIST'S EVALUATION OF "BIG RED..."

Table 1 contains the questionnaire administered to a class of 22 graduate student reading specialists at Georgia Southern College concerning their reactions reactions to the stories found in "Big Red..." The reading specialists responded to each of the questions in the table and their responses are tallied. The following scale was used according to how well the statement expressed the rater's statement.

(1) Not at all
(2) Somewhat
(3) Adequately
(4) Very well
(5) Extremely well.

An inspection of the pattern of responses shows that the 22 graduate students in reading often demonstrated opposite perspectives concerning the stories. A spread of responses among the 5 choices available show such a distribution along each evaluative continuum that seldom does a cluster of tallies appear toward one or the other end. However, a mean of the responses is used to indicate predominant sentiment about each of the statements.

Thus it appears that the predominant sentiment of the graduate students is that the interest areas are appropriate for those from black disadvantaged backgrounds. Also, there is a strong feeling that the style of language is authentic. However, literary quality was judged as merely "adequate". Most students felt that the reading level and content are appropriate for disadvantaged adults; however, there were decreasing indications of opinion that the stories are appropriate for high school age students and junior high age students.

The bulk of the graduate students indicated strongly the feeling that the stories contain important sociological themes. Further, they felt that such themes reflect pessimism regarding opportunities for self-fulfillment of blacks more than optimism. Finally, these 22 graduate students in reading, middle class with two blacks, indicated the general opinion that the stories were hardly appropriate for ethnic groups other than disadvantaged blacks.

TRAINEES' EVALUATION OF "BIG RED..."

The stories were also rated by 14 trainees who were participating in a Public Service Careers project located on the Georgia Southern College campus. The group of 14 included 4 black males, 8 black females, and 2 white females. Reading ability levels of the group ranged from the fourth to the eighth grade levels with a mean of 5.2 according to the Follett Individual Reading Inventory. Their ages ranged from 19-40. The trainees were working 5 hours a day at Georgia Southern College and were receiving 2 hours a day of job related reading, math and other types of instruction. These subjects were peers of the persons contributing most of the stories in "Big Red..." in the sense that most were black and of the same cultural and socio-economic background.

The trainees were asked to read the stories contained in "Big Red...". The directions were for the readers to give their opinions about each of the stories by reading the statements on each page and following these directions (which were given on each page): "Circle the number beside each statement which best represents what you think about it." The scale for ranking was 1-5:

(1) Disagree strongly
(2) Disagree somewhat
(3) Agree somewhat
(4) Agree
(5) Agree strongly

TABLE 1

Summary of Reading Specialist Graduate Students' Opinion of "Big Red and Other Adult Stories" (N=22)

Statement	Rating* 1	2	3	4	5	Mean Rating
1. Interest areas are appropriate for those from disadvantaged black backgrounds.	0	6	2	4	10	3.8
2. Style of language is authentic.	0	1	6	11	4	3.8
3. Stories passes literacy quality.	2	5	9	5	1	2.9
4. Reading level and content appropriate for disadvantaged adults.	2	4	5	9	2	3.2
5. Reading level and content are appropriate for high school age students from disadvantaged background.	2	6	5	5	4	3.1
6. Stories are appropriate for junior high school age students.	6	8	2	5	1	2.4
7. Stories contain sociological themes important in interpreting the black experience in America.	2	3	2	7	8	3.7
8. Stories convey themes of optimism regarding opportunity for self fulfillment of blacks.	5	6	5	5	1	2.6
9. Stories convey themes of pessimism regarding opportunity for sel fulfillment of blacks.	0	3	7	9	3	3.5
10. Stories may be appropriate for ethnic groups other than disadvantaged blacks.	6	10	2	3	1	2.2

*Statement represents raters view:

1	2	3	4	5
Not at all	Somewhat	Adequately	Very Well	Extremely Well

TABLE 2

Summary of Trainee Ratings of Each of the Six Stories in "Big Red and Other Adult Stories" (N=14)

Statement*	Story						
	Frog	Bike Ride	Foot Race	Big Red	Sterling & Robbie	Pecking on Blind	Mean Rating
1. The story would be interesting only to black adults.	1.8	1.6	1.9	1.6	1.6	2.1	1.8
2. The story would be interesting to most all adults.	2.8	2.6	2.8	3.1	3.0	3.8	3.0
3. The story would be more interesting to men than women.	2.4	2.4	2.4	3.1	2.6	2.4	2.6
4. The story would be good to use in teaching reading to adults.	2.9	2.8	2.6	2.6	2.4	2.2	2.6
5. The story is suitable for a high school literature class.	1.8	2.3	2.2	2.1	2.1	2.2	2.1
6. The story was easy to read.	4.4	4.4	4.6	4.1	3.9	3.9	3.9
7. The language in the story was realistic.	4.1	4.0	3.9	3.8	3.5	3.9	3.9
8. The story might have happened in real life.	3.4	4.0	3.9	3.9	3.4	3.3	3.7
9. The outcome of the story made you feel good.	2.4	2.6	3.5	2.6	2.6	3.0	2.8
10. The outcome of the story made you feel bad.	2.1	2.4	2.1	3.0	2.0	2.3	2.3

* Rater has following opinion about statement:

1	2	3	4	5
Disagree Strongly	Disagree Somewhat	Agree Somewhat	Agree	Agree Strongly

Table 2 contains the results of the questionnaire with each of the stories separately rated and a mean rating for each question for all of the stories.

Unlike the reading specialists, the trainees disagreed somewhat with the statement that the stories would be interesting only to black adults. They suggested that the stories would be interesting to all adults, both men and women. "Big Red" was the only story that was judged to appeal more to men than women.

The two shortest stories, "The Frog in the Wood Pile" and "Bike Ride", were considered by the trainees most suitable for use in teaching adults to read. None of the stories were judged as suitable for use in a high school remedial reading class.

There was solid agreement that all of the stories were easy to read, that the language was authentic and that the story might have happened in real life. These were also the strongest opinions of the reading specialists.

No clear-cut opinion is evident concerning whether the stories have optimistic or pessimistic themes. Of the stories, "Tracy's Foot Race" made the trainee readers feel good to the greatest extent and "Big Red" made the readers feel bad to the greatest extent.

In summary, the two rating groups confirm the view that the stories in "Big Red..." are highly interesting and an authentic reflection of the black experience. Inspection of the ratings in response to question 1, in Table 1, indicates that 6 raters (out of 22) agreed only somewhat with the statement that "Interest areas (of the stories) are appropriate for those from disadvantaged background". DeStefano (1971) has reported a pilot study dealing with black attitudes toward black English. He also noted a mixed attitude toward the use of using black English in teaching blacks to read. DeStefano also notes that other investigators have reported this mixed attitude. Labov (1964) noted "...a growing number of Negroes, Puerto Ricans, and lower class whites reject the value system implied by the dominant speech pattern and adopt a new reference point in which Southern Negro speech is central" (pp. 96-97). Schneider (1971) tried a field test of reading material for teaching reading to inner-city black children. This material included dialect reading selections. Schneider noted that success of the material among the black children was excellent but that opposition from school administrators and a few members of the local black community caused cancellation of this experimental program.

SECTION 3

VALIDATION OF THE AUTOMATED READABILITY INDEX FOR USE WITH PEER-PREPARED MATERIALS

This part of the grant effort demonstrated that reading difficulty levels as measured by the ARI is a significant factor in comprehensibility as measured by cloze scores.

METHOD

Test Materials and Procedures. The test materials consisted of three stories in which true to life experiences had been related by members of the same cultural setting as those taking the test. Each story was taped, transcribed, and rewritten at three grade levels, 4th, 8th, and 12th as determined by the ARI. The stories, found in Appendix B, are entitled "The Frog in the Woodpile", "Miss Sisson and My First Bike Ride", and "Tracy's Foot Race". The first two stories were contributed by a black male incarcerated in the Waynesboro County prison and the last story by a black male who held a professional position at Georgia Southern College. The cloze procedure was used to measure comprehension on each passage. Every 5th word was deleted from each passage. This was defined by a white space separating it from other words. The subjects were told to fill in these blanks, each of equal length, with the correct word. Synonyms and misspellings were accepted as correct. Test results were determined by the percentage of correct responses on each passage.

Test passages were systematically assigned to the subjects. This consisted of counter-balancing stories and grade levels to insure that each student received three different stories at three different grade levels.

Subjects. Subjects were initially all students enrolled in remedial reading courses in the upper high school grade levels of Sylvania High School. Only 33 of these subjects completed the test materials, however, either because of apathy or extracurricular activities. These constituted the final sample. All subjects were black and both sexes were included. The reading levels of these students ranged from 3.1 to 10.4 with an average reading level of 6.23. These reading levels, based on the Gates MacGinitie reading test (Buros, 1965), were utilized for a correlation study between the cloze scores and reading levels.

Apparatus. The apparatus used in determining the grade levels of passages according to the ARI was in IBM Selectric typewriter attached to a Readability Index Tabulator by means of microswitches. A description of the design of the ARI equipment is found in Appendix D as well as in Smith and Senter (1967). The Readability Index Tabulator recorded the number of strokes, words, and sentences in the passages. From this information, the ARI formula was used to calculate the grade levels. The ARI formula for grade level is the following:

$$GL = 0.50\ (wd/sn) + 4.71\ (st/wd) - 21.43$$

where:

GL = assigned grade level
wd/sn = words per sentence or sentence length
st/wd = strokes per word or word length

RESULTS

The mean percentage correct for the easy (4th grade level) versions was 72.15%; for the medium (8th grade level), 61.30%; and for the hard (12th grade level), 60.85% as shown in Table 3. Also shown are the means for each passage at each grade level (4th, 8th, and 12th).

An analysis of variance for unequal cell blocks was performed on the data with "passage" and "readability" as factors. The F-test for readability was significant beyond the .05 level ($F = 3.84$, df = 2,90). The passage factor was significant beyond the .01 level ($F = 7.94$, df = 2,90). The interaction between passage and readability was significant beyond the .01 level ($F = 5.52$, df = 4,90).

A Newman Khuls post hoc comparison test was conducted on each significant factor. On the readability factor, a significant difference between scores made on the easy and hard versions and medium and hard versions of the passages was found (in both cases, $p < .05$).

The Newman Khuls test was also used to analyze the passage factor. A significant difference was found between scores made on the "Frog" passage and the "Foot Race" passage as well as the "Bike Ride" passage and the "Foot Race" passage (in both cases, $p < .01$).

The Newman Khuls post hoc test for the interaction factor indicated significant differences between cloze scores found in the medium and hard versions of the "Foot Race" passage and most of the other passages. An inspection of the cloze score means shown in Table 3 shows that the very low scores for these two factors accounts largely for the significant passage by readability interation factor.

Correlation coefficients were computed on the cloze scores for each test passage and scores made on the Gates MacGinitie test scores and are shown in Table 4. A significant positive correlation was found between these scores for all passages at each of the three grade levels.

DISCUSSION

The results of this study support the hypothesis that comprehension is greater for easier as compared to harder versions of peer-prepared materials as determined by the ARI. Similar findings were reported by Smith and Kincaid (1970) and Delionbach (1971) in validation of the ARI for use with technical materials.

It is interesting to note, however, that these results were determined largely by the "Foot Race" passage according to the Newman Khuls test on passage by readability interaction. The contributor of this particular passage was of the same race, but of a different socio-economic class, than the contributors of the other two passages. Additionally, his residence had previously been in another section of the country (New York City). According to Smith and Senter (1967), readability is less important if the reading material covers a familiar subject. It is feasible to assume, therefore, that this story contributed by a person of a different socio-economic level and reared in a different section of the country could be sufficiently unfamiliar in content to make readability level critical. This might indicate that the comprehensibility of material, if contributed by persons of the same area and socio-economic level is not so influenced by reading difficulty level as the material contributed by individuals who are from different areas and socio-economic levels.

TABLE 3

Mean Percentage Cloze Scores for

Passages at Each Grade Level

with Row and Column Means

Passages	Version			Means
	Easy	Medium	Hard	
"Frog"	71.39	77.70	66.10	71.70
"Bike Ride"	67.90	64.00	74.10	68.24
"Foot Race"	77.40	41.40	46.61	54.36
$\bar{X}$ Totals	72.15	61.30	60.65	

TABLE 4

Pearson Product Moment Correlations Between

Gates MacGinitie Reading Scores and

Passage Scores

Grade Level	"Frog"	"Bike Ride"	"Foot Race"
4TH	.57*	.77**	.76**
8th	.68*	.73**	.57**
12th	.70*	.82**	.87**

**p < .01

* p < .05

Significant positive correlations between cloze scores and Gates MacGinitie reading scores were found at all grade levels; however, these correlations were higher in passages written at the highest grade levels. A significant positive correlation in this study indicates a relationship between the reading ability of the subject and comprehension of the peer-prepared material.

Significant positive correlations between the Armed Forces Qualifying Test and scores obtained on the tested material were found only at the highest grade level (16th grade) and not at the two lower grade levels (8th and 12th) as reported by Delionbach (1971). Delionbach explains that correlations in his study were not significant at lower grade levels because easier passages do not favor the better readers whereas the most difficult passages do.

Although the correlations in this peer-prepared study were higher for the most difficult passages, they were significantly positive at all grade levels. This difference might be explained by the fact that the mean reading ability level of the subjects (6.23) was quite low. All of the grade levels used were either around or above the average reading level of the subjects. Therefore, all grade levels were sufficiently difficult to allow better readers to demonstrate their ability.

In this study, significant differences were found between scores made on the easy and medium versions and on the easy and hard versions of the test passages; however, no significant differences were found between medium and hard passages. In the study by Delionbach (1971) significant differences were found between hard and medium versions and hard and easy versions, but not between easy and medium verions of his test passages. This finding indicated to him that the simplification of technical material beyond the reading ability level of the readers doesn't increase comprehension. The same explanation, only in reverse, could apply to the present study. Comprehension does not decrease significantly when peer-prepared material is too far above the reading ability level of the reader.

The finding that the passage by readability factor was significant leads to an interesting observation. That is, reading difficulty level of material is of little consequence if the reading material is very familiar to the reader. Reading difficulty level affects comprehensibility more, however, if the reading material is not so familiar. The greatest effect of familiarity occurs when the reading difficulty level is higher than the reading ability level of the reader. If the material is quite familiar in terms of content, grammatical structure, and vocabulary, then difficult levels of readability do not lower comprehensibility to any great extent. Thus, the lowest cloze scores were seen on the 8th and 12th grade versions of the least familiar story, i.e., the "Foot Race" story. Reading difficulty level had a less profound effect on comprehensibility with the two more familiar stories, i.e., the "Frog" story and the "Bike Ride" story.

The two main hypotheses of this validation study, therefore, were confirmed. First, comprehension was found to be greater for peer-prepared material placed at lower, as opposed to higher grade levels if the material was not too familiar to the reader. Secondly, a positive correlation was found between cloze scores obtained on peer-prepared material and the reading ability level of the reader.

SECTION 4

TEST-RETEST RELIABILITY OF THE AUTOMATED READABILITY INDEX, FLESCH READING EASE FORMULA AND FOG COUNT

This section concerns experimental data concerning the test-retest reliability of three readability formulas. Two of these, the Flesch Reading Ease Formula (Flesch, 1948) and the Fog Count (Gunning, 1952) involve manual computation. The data from which the ARI is calculated is automatically gathered as draft material is typed on a modified electric typewriter.

The Flesch Reading Ease formula was developed by Rudopf Flesch in 1948. Reading Ease is determined by sentence length and average number of syllables. These two measures are combined in a regression equation to yield a grade level (Flesch, 1948).

In 1952, Robert Gunning developed a formula using two levels of word difficulty to determine readability: easy elements (words that can be pronounced in one or two sounds) and polysyllables (words that have more than two sounds). Sentence length is the measure of sentence difficulty. These combined to yield a Fog Count. The Fog Count also yields a grade level corresponding to difficulty level. A detailed description of the Fog Count and its application can be found in Gunning (1952) and in the Guide for Air Force Writing (1963).

The 1967 work of Smith and Senter resulted in a new readability formula, the ARI. Using this method a passage is typed on a Readability Index Tabulator which records the number of strokes, the number of words, and the number of sentences in the passage. Word length and sentence length are computed from these three measures. These values are used in a regression equation to obtain an ARI as well as a grade level. The method is described further in the Introduction and in Appendices C and D.

Even though all three formulas provide measures of readability (numerical values corresponding to grade level or reading ease), the ARI formula has several advantages. Smith and Kincaid (1970) list three advantages of the ARI: (1) as a manuscript is being typed the necessary measures (number of strokes, number of words, and number of sentences) are recorded; (2) thus, no manual counting of letters, words, syllables, and sentences is required; and (3) the ARI is easily programmed for computed use.

According to Smith and Kincaid (1970) the difference in recording the measures of the formula (manual or mechanicial) result in test-retest reliability differences for the various formulas. Since all ARI measures are mechanically recorded, the measures are less susceptible to variation (error) than those counts recorded manually, the Flesch Reading Ease and the Fog Count, and a higher more constant reliability is obtained. Research concerning the reliability of the formulas has been conducted. Reliability is a very important factor in choosing one readability formula as opposed to another for usage.

England, Thomas, and Patterson (cited in Klare, 1963) reported test-restest reliability for the Flesch formula, ranging from .95 to .99. These researchers also found reliability coefficients ranging from .90 to .97 for between analyst reliability.

Hayes, Jenkins, and Walker (1950) presented similar findings for the Flesch Reading Ease formula. They reported test-retest reliability coefficients as follows:

syllable length .95; sentence length .99; and a total Reading Ease score of .98.

In an early study on the ARI, Kincaid, Yasutake, and Geiselhardt (1967) reported very high test-retest reliability coefficients for the formula factors: .996 for number of strokes; .985 for number of works; and .988 for number of sentences.

METHOD

Test Materials and Procedures. Testing materials consisted of all of the reading paragraphs from Form A and Form B of the "Minnesota Reading Examinations for College Students (1930)." This included 20 paragraphs, 10 from each form of the test, and 4,245 words in all. The subject was given practice on taking counts using all three readability methods (the ARI, Flesch Reading Ease Formula, and Fog Count) and then given xerox copies of the reading tests and instructions for taking the counts. These instructions are found in Appendix C.. She worked at her own pace checking occasionally with the experimenter who looked over the calculations to check for gross errors (much as an editor would). Data was recorded on work sheets and computation of formulas was accomplished using an electronic calculator. The subject kept track of the time she spent working on each passage. After completing a given section she handed the material in to the experimenter. Approximately one week after completing all materials using the three readability formulas, the subject repeated the procedure.

Subject. The subject was a senior at Georgia Southern College who worked part-time as a secretary. She typed at the rate of 45 words per minute.

RESULTS

The test-retest reliabilities are shown in Table 5. The test-retest reliabilities are; for the ARI grade level, r=.983; for the Flesch Reading Ease score, r=.704; for the Fog Count grade level, r=.759. Also shown are the test-retest reliabilities for the formula factors used to calculate the grade levels (or reading ease score). In all cases these are at least as high as .98 except for the polysyllable measure of the Fog Count where r=.944. The stroke, word and sentence test-retest reliability coefficients of the ARI are very similar to those reported by Kincaid, Yasutake; and Geiselhart (1967) and shown above in this section.

Times for calculating the reading difficulty levels of the passages by the three methods were also kept. There was little difference between the three methods. The average time to calculate each passage was: for the ARI, 9.8 minutes; for the Flesch Reading Ease Formula, 10.2 minutes; for the Fog Count 8.8 minutes.

An analysis of variance was performed on the time measures with the formulas and the test-retest scores as variables. Only the formula variable was significant

($F = 3.64$, $df = 2,118$, $p < .05$). However, a Scheffé's post hoc test between pairs of means of this formula factor revealed no significant differences at the .05 level.

DISCUSSION

Test-retest reliabilities for all formula factors and grade level for the ARI are extremely high indicating that the automated method results in high consistancy. Onepresumes that accuracy is also high. Calculation of readability using the two

TABLE 5

Pearson Product Moment Test-Retest

Correlations for ARI, Flesch and Fog Counts

Readability Measure	Correlation Coefficient
ARI	
Strokes	.997
Words	.997
Sentences	.986
Grade level	.983
Flesch	
Syllables	.996
Words	.998
Sentences	.986
Reading Ease	.704
Fog	
Easy Elements	.992
Polysyllables	.944
Sentences	.998
Grade Level	.759

manual readability methods is not quite so consistant as judged by the lower test-retest reliability coefficeints. This is caused in part by the difficulty of counting syllables manually.

While time required for taking ARI measures is no less than for taking the manual readability measures, a very fast typist would almost certainly take ARI measures in less time than other readability measures. The subject in the present study typed at about 45 word per minute. Some good secretaries can type at twice this rate.

CONCLUSION

The use of peer-prepared reading material has obvious merit for teaching reading to beginning student of particular cultural or ethnic groups. The present study dealt only with Southern adult blacks and stories produced were judged to be interesting, authentic and appropriate as reading material for the same group. The peer-prepared concept might also be applied to produce reading material for other groups such as American Indian adults or black high school students from northern cities. Another useful project would be to produce peer-prepared job-related material for vocational school students. Some investigators have noted that their initial attempts to use dialect readers were met with mixed reactions by teachers and some members of the minority groups for which the readers were intended. The ratings by the two reviewing groups in the present study indicates generally good acceptance of the material in "Big Red..." but a few individuals indicated dissenting views. In any follow-up work an effort should be made to retain the best features of the peer-prepared approach, i.e. natural language, high interest value, and familiar topics. At the same time, however, topics should be carefully selected so that the resultant readers can gain the widest acceptance among such people as remedial reading teachers and minority group leaders.

This effort is an initial attempt and only informal information has been received from field use of the reading material. This feed-back has been quite favorable. More systematic field testing of "Big Red..." and similar readers is certainly called for, however Also, in future work, greater attention might be focused on linguistic aspects. Also, other formats of presenting the peer-prepared material, such as on tape recordings might be tried.

Grading the peer-prepared stories with a readability index was demonstrated to be useful, and the reading difficulty of the resultant passages should not exceed the reading ability level of the intended reading audience. The Automated Readability Index was shown to be a valid and reliable readability measure to use to grade peer-prepared passages. Other readability measures, such as the Flesch Reading Ease Formula, might also be used, if care is taken to be accurate in taking the counts.

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APPENDIX A

PEER-PREPARED STORIES IN "BIG RED AND OTHER ADULT STORIES"

This appendix contains the best of the peer-prepared stories gathered during the course of this project. They are separately published in an illustrated booklet, "Big Red and Other Adult Stories". The reading difficulty level according to the ARI is indicated for each story.

THE FROG IN THE WOOD PILE

I can remember coming home from school one day when I was about seven years old. It was really cold and it felt even colder because I didn't have warm clothes. When I got home, I got close to the fire to warm up. This was the only fireplace in our whole house that had three rooms. The fire was getting low and I knew I would have to go outside soon to chop some more wood. Mama went out to the backyard with me to show me what to cut. There was this frog in the wood pile and I wanted to get that frog. Mama told me not to mess with that frog on account of it being bad luck to mess with frogs. Some people say it is bad luck to play with frogs but right then I didn't think about it. Right after my Mama went into the house I got that frog and we had a good time. When I got done with chopping the wood it was so cold that I went into the house to stand next to the fire. I guess I got too close and my pants caught on fire. Mama threw me down and put the fire out before it hurt me. From that day to this I haven't forgotten it is bad luck to mess with frogs. (4th grade level according to ARI)

MISS SISSON AND MY FIRST BIKE RIDE

I can remember when I first learned how to ride a bike. At first I was a little afraid, but, since my brother had gotten three bicycles for Christmas, I decided to let him teach me how to ride.

The first day he put me on a bicycle and said, "O.K. now, I'm going to start you off and don't be a sissy."

He showed me how to guide the bicycle and told me all the little things to do when you want to stop, like mashing the pedals and so forth.

I decided I was about ready to go so my brother sort of gave me a little push. I started pedaling and was going along feeling O.K. about the thing. I kept going faster and faster.

"Wow, this is feeling pretty good. I'm really going to enjoy riding a bike," I said to myself.

There were three houses on this little field where we used to live, our's, my grandmother's and an old lady's called Miss Sisson. We all thought Miss Sisson was an old witch or something. She looked pretty horrible.

About the time I came to Miss Sisson's yard, my brother yelled at me from behind telling me to pull off. I pulled in the yard but I didn't see her standing there.

My brother told me to put on the brakes and I tried, but, wow, no brakes, you know. Then it sounded like a crash, bam, boom, because I ran into the old lady. The chicken coop was right there and I ran smack into it, too. I killed about three or four hens, because feathers began flying and I started flying. I ran all the way back home.

I was so afraid. I thought maybe the old lady was going to put some sort of spell on me, so I hopped into bed and covered up my head. I thought maybe she couldn't find me there.

The next day she came and told my mother about it. I made up some wacky story, saying that the old lady was probably dreaming, being she was so old and all. But I knew when mother was whipping me, she hadn't gone for that wacky tale. I guess I need some practice telling tales so I can still have fun and won't get beatings. (5th grade level according to ARI)

TRACY'S FOOT RACE

I never met Tracy Isaac but I guess I could recognize him because some people say he looks like a little devil, you know, with fangs and a pair of horns. Once Mrs. Beatress Harrison swore she saw Tracy howling at the moon outside a P.T.A. meeting. Tracy was already pretty well known when Liz took over the class that he was in. None of the other teachers wanted that class because they didn't think the kids could be taught. Liz really wanted that class. I knew Liz and I knew she could reach the kids if anybody could. All of the kids in that class were poor and most were also black. Liz was the only black teacher in the whole school.

Thirteen of the students in the school were on probation and nine of these were in Liz's class. These kids had gotten in trouble because the teachers said they fought, cussed, and wouldn't mind. Liz thought that they were in trouble because the teachers were racists, and Old Man Polly, the principal was the biggest bigot of them all. They nick-named him, "Polly Cracker".

Liz never did pretend that Tracy and his bandits were angels. She knew that they were only guilty of being kids, tough kids from a tough world, but kids just the same. In private, Liz would refer to Tracy as "Little Ceaser" or "Fang" but I know she loved the hell out of that kid and the others, too.

Mr. Polly really began to hate Tracy because of what he did in the Inter-City Track Meet in May. Everybody thought the elementary school principals had money riding on their schools and the winning school was to receive a four-foot trophy. You could just picture Mr. Polly already admiring that trophy sitting in the big case in his office. Tracy was a sure bet. Nobody could outrun him in the fourth and fifth grade event.

Just before the meet was to begin, Mr. Polly called Tracy into his office and said in his dixie twang, "Now Boy, I'm going to give you a chance to clear up your messy record here at my school and to make something of yourself. All you have to do is bring me that big old trophy and things are going to be different around here, you hear?"

"Yes, Sir," said Tracy, as he looked down at the big white hand on his shoulder.

Bang! Tracy took off for the wire, leaving the others running at what looked like a slow trot. Halfway down the track, Tracy was leading by twenty yards. Mr. Polly's face reflected his confidence as he shouted, "Run Boy, go get old Polly that trophy."

Tracy was ten yards from the wire leading the pack by a mile when suddenly he came to a halt. There he stood. All he had to do was take one step and be a winner. The crowd went wild and Polly was yelling his head off because Tracy had calmly sat down and crossed his legs Indian style right in front of the finish line. The little monster once again lived up to his reputation as he sat smiling and watching the runners go by, one by one, until he was dead last.

Even the black kids didn't know why Tracy decided to lose, but Liz did and Tracy surely knew. If anybody had taken a look at Old Polly Cracker's face they would have known, too. (7th grade level according to ARI)

BIG RED

A bunch of us cats was hanging around George's place when in comes Slick Pete Jackson sporting a tan leather suit, brown gator boots, wide tie, and, a big apple sitting just so over that big 'fro, barely showing his left eye. Topping it off, that mother had a brown cashmere three quarter, (kind of hanging off his shoulder) and carrying a pair of form fitting kids, just for show. Brother Man was out there.

Big Red was sitting at the bar, about to wrap his soup coolers around a beer can when he spotted Slick Pete. After a double take, Red let out a loud and lazy, "Sweet Pete, my main gazane. Come here with your bad self and lay five on a poor boy."

No one every understood how Big Red got to be Big Red because he wasn't big and was closer to black than anything else. Calling him Big Red was like calling a German shephard, "Fifi".

While Slick Pete was busy slapping five with the brothers I heard George mumble from behind the register, "Pete found him a new hustle, that S.O.B."

Hustling was Pete's trouble. Nobody had seen him for months, which meant that he was down. Hustlers are never in between. They are either up or down. When they're doing bad, you don't see them; when they're doing good, you can't see nothing else. Pete was up, into his total thing, and would stay up until his play ran out; and it would run out. Hustlers always know that, they just don't know when.

Hattie Mae was his last play. She was teaching out at Butler High, doing all right, too. She had a hip crib, nice wheels and a few coins laid out, nice. Pete gamed on the chick and blew her dust, her reputation, her gig, her crib and her mind. Pete left nothing, except the baby.

George hated hustlers, especially Pete.

Pete dropped fifty bills in one hour in George's Place.

George smiled.

I suppose business is business.

George kept serving, Pete kept buying, the brothers kept oozing, and Big Red kept close to Pete, still gaming, "Sweet Pete, my Stone Brother Man". Pete was eating it all up. He was up, and Big Red wasn't about to let him down. Not yet, anyhow.

Two hours and three bottles later, Pete was rapping about his roll, and lifting his shirt to show his new thing, a money belt, bragging all along about, if he got rolled, the punks would go for the hip, never being heavy enough to deal with no money belt.

Meanwhile Red was shifting to second, getting real brotherly and still programming, "Right on, Slick Baby, Right on, Brother Man."

I said to myself, "Run it Red". George shook his head, still mumbling, "Red's going for the kill." He got that right.

Pete and Red could be heard above everybody else (Red saw to that) and into a me-and-you bag.

Red: Me and you, right Slick?

Slick: Right on, baby.

Red: Me and you go way back.

Slick: Talk about it.

Red: Brothers of the same lodge.

Slick: Spun from the same loom.

They left together (all chummy) a little later, but Big Red was wearing the belt. As Red put it, "You high baby. Old Red's sober; I'll guard the gold."

He got that right.

They left George's burning rubber; Red at the wheel showing all thirty-two, Pete was nodding.

Big Red had put in a hard day. The time to tip was getting closer and Red couldn't wait. Maybe that's why he ran the light. Red and Slick. He soon found out what Slick's hustle had been.

The car was stolen (Grand Theft Auto).

Heroin in the hubcaps (Possession Narcotics).

Red was high (Driving under the Influence).

The big surprise to Red was heroin in the moneybelt he was wearing (Possession Narcotics).

For the first time in his life, Red had met a police officer that treated him with dignity.

The officer politely said to Big Red and Pete, "You have the right to remain silent." (5th grade level according to ARI)

GLOSSARY OF SLANG TERMS

Big Apple: Type of hat with wide brim.

Bill: Dollar

Cat: Man; person

Crib: Pad; Apartment

Eating It (All) Up: Enjoying the situation.

Fro: Afro haircut.

Game: Exploit; Take advantage of; as in "He gamed on her".

Gig: Job.

Heavy: Good; Bright or intelligent.

High: Under the influence of alcohol or drugs.

Hustle: To act as a hustler; Also to engage in other types of illegal or antisocial behavior, generally for personal gain.

Hustler: One who exploits a person or situation.

Kids: Kid gloves, or simply gloves.

Main Gazane: Good or best friend.

Me-and-You Bag: Refers to a "buddy" or close relationship.

Ooze: To drink alcoholic beverages.

Out There: A phrase refering to excellence or that which is enviable.

Play: Victim; As in "She was his last play".

Rapping: Discussing in a friendly manner.

Showing Thirty-two: Grin, smile; thirty-two refers to the number of teeth.

Slapping Five: A form of greeting in which two people slap each other's open palms; same as "laying five".

Soup coolers: Lips used to blow hot soup.

Sporting: Wearing.

Tip: Leave; As in "make off with the money".

STERLING AND ROBBIE

Leon: Sterling and Robbie was living on the paper mill hill back then, and Sterling was working at Tedder Store. That cat was stealing everything he could get his hands on: stoves, ice boxes, anything and everything. That cat could steal an egg yoke without breaking the shell. I ain't lying. I wouldn't jive you. Anyhow, Sterling had been stealing for a long time, two or three years. I mean, it was a long time, and he hadn't never gotten caught.

George: What was he doing?

Leon: He was driving the truck, delivering furniture. Hell, anything Tedder sold, Sterling delivered, him and Jess Lighty. You remember Jess Lighty what killed Fathead Davis.

Junior: Yea, yea. I know, Rock Lighty's daddy.

Leon: That's the one. Well, him and Sterling used to be in charge of all of Tedder's delivering. They didn't have no delivering department back then like they do now. Sterling and Robbie did all that. I'm going to tell you something. Mr. Tedder loved that boy. Hear what I say? I mean that cracker loved him some Sterling O'Neal. Didn't he Will?

Will: Damn sure did.

Leon: That old cracker got Sterling out of jail many a time. Course you know Sterling didn't play back then. Sterling O'Neal used to be a mean bastard, you hear me? That cat put the hurting on many a S.O.B.; and Robbie wasn't a slow leak either. You see how Robbie goes to church now and doesn't allow cussing and drinking around her. Well back then Robbie would cut your throat no sooner than look at you, hear? A lot of people are still wearing scars on their heads what Robbie put there. Is I lying Will?

Will: Damn sure ain't. Hell, Sterling didn't even mess with Robbie.

Leon: That's right. Anyhow, Sterling and Robbie were out to old Man Nickleson's house one Sunday evening. That was Robbie's granddaddy. They were sitting out on the porch just laughing and talking when old Sterling spotted the county man (sheriff) driving up the road toward the house. That cat kind of leaned over and looked. He knowed he was in trouble then. Before he would have done something, like being drunk, or fighting or something. This time he was sitting on the porch talking. He hadn't drunk a drop and wasn't doing nothing. So that fool just knowed that they had found out about him stealing, sure enough. Well that cat jumped out of his chair, ran through the house and busted through the shutters. Back then they didn't have no windows like they do now. He started tearing tail because he knowed if they caught him there wouldn't be no Mr. Tedder getting him out of jail. So anyhow, Sterling busted through the shutter like I said and started running through the corn field back of the house. Now this was the fall of the year and the corn was dry. I'll bet you right now that there ain't nobody in this town can beat Sterling O'Neal if that fool wants to run. And he wanted to run and he was moving, hear? He was hauling tail through that field and the cat was running so fast that everytime he hit a corn stalk it would crack and sound like someone behind him. The louder that damn corn cracked the faster that cat ran. Hell, the sheriff hadn't even got out of the car as fast as that S.O.B. was running, but Sterling thought that county man was right behind him. Now you might think I'm lying, but he ran from six o'clock in the evening, all night long until he passed out. I mean he just ran till he dropped. Next morning he woke up when he heard a horn, a long distance truck horn blowing. He must have been near the highway. Anyhow, he walked toward the highway and he noticed that all the cars had North Carolina license tags on them. That cat had run from Aiken County, South Carolina all the way to the North Carolina line without stopping. Now, I ain't lying.

Junior: Man, why don't you stop your lying.

Leon: I ain't shucking. If you don't believe me, ask Robbie. You know Robbie ain't going to lie. Tell him Will.

Will: Man I ain't going to tell that damn lie.

Leon: Well, believe me if you want to. Anyhow, after all the running that cat did, come to find out that the county man had come out to old Man Nickleson's house just to talk to Sterling. Sterling hid out in Winston Salem (North Carolina) with relatives (some of Robbie's people). He never did see old man Tedder again, but do you know that cracker left Sterling all the land (800 acres) what him and Robbie got now. That's right. Ever since then, Sterling and Robbie O'Neal have been Christian people.

(7th grade level according to ARI)

GLOSSARY OF SLANG TERMS

Cracker: A person of the white race.

Hauling Tail: Running rapidly.

Jive: Kid; try to fool; same as shuck.

Shuck: Kid; same as jive.

Slow Leak: Refers to a person to be respected; as in "He was no slow leak".

Vine: Dress well.

NO NEED A-PECKING ON THE BLIND

A few years back I was living in Hazlehurst, Georgia and cutting timber for a living. Every morning I drive my truck to the Standard Station on the corner to get diesel oil. Well one morning I got to thinking and said to myself, "Hell, I'm going to find me a woman." So I jumped in the truck and drove through town. There on the walk was a woman - a fine woman. Well, maybe she wasn't that fine but she was a woman.

I said, "Hi Babe, what you up to."

She said, "Nothing Mister. How's about a ride."

I said, "Hop in. Do you know some place we can go to get to know each other better."

She said, "Yea, go down Church Street and turn down to the third house on the left."

I shot the juice to that old truck and there I went. I pulled into that third yard and she hopped out and I hopped out.

"Just follow me," she said.

We went into the house and there lay a little baby just kicking and crying.

She said, "Soon as I get this bottle everything will be ready, Mister."

I said, "O.K., Babe."

I reached down and tickled the little fellow under his chin, kissed its brow and told him to hush because Mama was coming back with his bottle. She came back in about three minutes and stuck the bottle in the baby's mouth.

"Where do you want to go now," she asked, "In the bedroom or out in the country."

I said, "Let's go into the bedroom. It's raining on the outside."

She went into the bedroom and I followed her. She got ready and I got ready and man did we have a good time. When we got through, I fell against the foot of the bed and looked up. The sun was shining.

"Damn, let me out of here," I said.

She said, "Hey darling, what's the matter."

I said, "Look over yonder, the sun's shining. I got to get back to that mill or I'll be fired."

I said, "Don't worry Baby, I'll be back."

I got into my truck and went back to that mill and sawed to black dark. I got to thinking about that gal and I thought that I'd go back and get me a little more of that stuff. Right then I was at home and had to say something to my uncle about going out. I thought I'd say something about needing diesel oil.

I said, "Unc, I'm going to get my diesel oil tonight so I won't waste no time in the morning."

He said, "O.K., hurry back. Supper will be ready in a little while."

I said, "Damn supper. I don't want no damn supper. I'm going to get my diesel oil." Of course, I wasn't studying that diesel oil. I wanted to go see that gal.

I went on back to Church Street, pulled in at the third house, got out of my pickup, walked up on the porch, opened the door and walked right in. There sat her old man.

He said, "Hey Mister, ain't you in the wrong house?"

"I beg your pardon, but I believe I am," I said.

"Well," he said, "you better be damn finding the right house."

I said, "Now wait a minute. Ain't no harm in me. I'm the gentleman cutting this track of timber down here for Mr. Jones."

He was really mad, but his voice was kind of cool, "Well you're in the wrong damn place so be on your way."

"O.K. Buddy," I said, and out the door I went. I got into my truck and went back to that mill - never got no diesel oil.

When I got back home my uncle was still waiting for me. "Unc," I said, "them men at the Standard Station already closed."

Unc said, "Damn they close early."

I got up the next morning and drove over to that Standard Station. There she stood with a black eye and a skined-up nose.

"Now, Mister," she said, "Don't ever do what you done last night again. I like to got killed."

"Yes, and I did too," I said, "Don't you come around my truck no more. You go the other way."

"Yes, but that was my husband," she replied. "He liked to kill me."

"He liked to kill me, too," I said. "Now go away."

"No," she said, "Now listen, Darling. Do as I tell you. Always leave your truck here at the station and walk down that back alley like I done this morning. He stays gone two-thirds of the time."

I said, "Yes, and the time I come will be the damn one-third of the time when he'll be there. I ain't coming."

"Listen. If you come up there and peck on the back window blind and if he's home, I'll pick up the broom and start sweeping and singing and you'll know he's here. You can keep on walking and nobody will ever know anything. If he's not there, I'll open the door. You know what a sweet beloved time we had yesterday and we can do it again."

I said, "Yea, but I'm scared. You go on."

That Friday morning I have my forty hours in about 7:30 or 8:00 I pulled over in my truck waiting on the banks to open at 9:00. I got to thinking about that gal and decided to try that.

I drove home to leave my truck there.

"Unc," I said, "I going to walk up to the barber shop and get a haircut."

He said, "Go in your truck so you won't lose no time."

"Traffic's heavy," I said, "I'll walk."

I hit that back alley, walked down to the third house and eased up in the back-yard to the blind. Peck, peck, peck. I heard her pick up the broom and thought to myself that there ain't no need to stay around. He's home. She came down the hall sweeping and singing.

"There's no need a-pecking on the blind.
No need a-pecking on the blind.
The baby is asleep and the old man's a-peeping.
There's no need a-pecking on the blind."

About that time, I heard him say, "Darling, sing that again.

"No, I don't sing it but once a day."

"Well, damn it, I can sing it myself," he said.

"Well that will be the only way you'll hear it," she replied.

He reached down and picked up the broom and started singing.

"There's no need a-pecking on the blind.
No need a-pecking on the blind.
My baby is a-sucking and I do my own damn loving.
There's no need a-pecking on the blind."

I left and I ain't been back there no more and I ain't going back.

(3rd grade level according to ARI)

APPENDIX B

GRADED PASSAGES (4th, 8th, and 12th) USED

IN ARI VALIDATION STUDY

This appendix contains the graded passages used in the ARI validation that is described in section 3 of this report. Table 6 contains the average word length, average sentence length, and ARI grade levels of the three passages used in the validation study. Each of these passages was rewritten at three levels of difficulty: 4th, 8th, and 12th grades.

TABLE 6

Average Word Length, Average Sentence Length
and ARI Grade Level of Passages

Story	Grade Level Version		
	4th	8th	12th
"Frog in Wood Pile"			
Average Word Length	3.78	3.88	4.01
Average Sentence Length	15.73	22.60	29.25
ARI Grade Level	4.24	8.24	12.08
"Bike Ride"			
Average Word Length	3.97	4.24	4.26
Average Sentence Length	13.29	18.50	26.93
ARI Grade Level	4.27	7.94	12.09
"Tracy's Foot Race"			
Average Word Length	4.01	4.26	4.46
Average Sentence Length	12.61	18.25	24.53
ARI Grade Level	3.75	7.76	11.83
Mean for all stories			
Average Word Length	3.92	4.13	4.24
Average Sentence Length	13.88	19.78	26.90
ARI Grade Level	4.09	7.98	12.00

THE FROG IN THE WOOD PILE

(4th Grade Level)

I was around 7 years old and coming home from school one day. Since I didn't have enough clothes to keep me warm, I could feel how cold it was that day; so when I went home, I got near the fire. Anyway, the fire was starting to get very low in the fireplace where we kept warm, being it was the only one in our house, which had three rooms. It happened that it was my time to cut wood that day and the fire was getting pretty low. My mother went outside to show me just what to cut. There was a frog under the house where we kept our wood. He was under the logs. As I was getting the wood to cut it, I kept playing with the frog, messing with it. Mother told me to leave it alone because it was bad to mess with frogs. Well, some people think it's a superstition. However, I didn't think it was bad at the time so I kept messing with the frog. When I got through with the wood, I went in. Anyway, it was very cold and I stood too close to the fire. My pants leg caught on fire and mother had to throw me down to keep the fire from burning me up. From that day on, I have always believed that it is bad luck to mess with frogs.

Storkes: 891
Words: 236
Sentences: 15

THE FROG IN THE WOOD PILE

(8th Grade Level)

I can remember coming home from school one day when I was around 7 years old. I realized how cold it was since I didn't have enough clothes to keep me warm; so, when I arrived home, I stood near the fire. This was the only fireplace in our whole house which had three rooms. Since the fire was beginning to burn pretty low, I knew I would soon have to go outside and cut some more, being it was my turn. My mother went outside with me to show me just what to cut, and as I was collecting the wood I was to cut, I noticed a frog under the wood which was under our house. In spite of Mother's warning to leave the frog alone, I kept playing with the frog, messing with it. Although some people consider this a superstition, I didn't think it was bad at the time, so I kept messing with the frog. It was so cold that when I finished cutting the firewood, I went in and while trying to get warm, I stood too close to the fire. My pants leg caught on fire and Mother had to through me down to keep the fire from burning me up. From that day to this, I have always believed it to be bad luck to play with frogs.

Strokes: 879
Words: 226
Sentences: 10

THE FROG IN THE WOOD PILE

(12th Grade Level)

I can remember coming hom from school one day when I was around 7 years old. I realized the temperature had dropped extremely low because I didn't have enough clothes to bundle up in so when I arrived home, I stood as close to the fire as I could. This was the only fireplace in our entire house which contained three homes; and since the fire was beginning to burn pretty low, I knew I would shortly have to go outside and chop some more, being it was my turn. My mother went outside with me to show me just what to cut, and as I was collecting the wood I was to cut, I noticed a frog under the wood which was under our house. In spite of Mother's warnings to leave the frog alone, I kept playing with the frog, torturing it. Although some people consider this a superstition, I didn't think it was bad at the time, so I kept messing with the frog. It was so cold that when I finished cutting the firewood, I went in and while trying to get warm, I stood so close to the fire that my pants leg caught on fire and Mother had to throw me down to keep the fire from engulfing me entirely. From that day to this, I have always believed it to be bad luck to play with frogs.

Strokes: 939
Words: 234
Sentences: 8

MISS SISSON AND MY FIRST BIKE RIDE

(4th Grade Level)

I can remember when I first learned how to ride a bike. At first I was a little afraid; but, since my brother had gotten three bicycles for Christmas, I decided to let him teach me how to ride.

The first day he put me on a bicycle and said, "O.K. now, I'm going to start you off and don't be a sissy."

He started me on the bicycle and told me all the little things to do in order to stop the bicycle, like mashing the pedals and so forth.

I decided I was about ready to go. My brother put me on the bicycle and sort of gave me a little push. I started pedaling and was going along feeling O.K. about the thing. I kept going faster and faster.

"Wow, this is feeling pretty good. I'm really going to enjoy riding a bike," I said to myself.

There were three houses on this little field where we used to live, our's, my grandmother's and an old lady's called Miss Sisson. We all thought Miss Sisson was an old witch or something. She looked kind of bad.

About the time I came to Miss Sisson's yard, my brother yelled at me from behind telling me to pull off. I pulled in the yard but I didn't know she was there. My brother told me to put on the brakes and I tried, but, wow, no brakes, you know.

Then it sounded like a crash, bam, boom because I ran into the old lady. The chicken coop was right there and I ran smack into it. I killed about three or four hens, I'm sure. Feathers began flying and I started flying, too. I ran all the way back home.

I was so afraid. I thought maybe the old lady was going to put some sort of spell on me, so I hopped into bed and covered up my head. I thought maybe she couldn't find me there.

The next day she came and told my mother about it. I made up some wacky story, saying that the old lady was probably dreaming, being she was so old and all. But I knew when mother was whipping me, she hadn't gone for that wacky tale. I guess I need some practice telling tales so I won't get beatings and still have fun.

Strokes: 1558
Words: 392
Sentences: 28

MISS SISSON AND MY FIRST BIKE RIDE

(8th Grade Level)

I can remember my first experience learning to ride a bicycle. In the beginning, I was slightly afraid; but, since my brother had received three bicycles for Christmas, I decided to allow him to be my teacher.

After telling me all the important little things to do in order to stop the bicycle, like mashing the pedals and so forth, he put me on the bike and said, "O.K. now, I'm going to start you off and don't be a sissy."

Having decided I was about ready to begin, my brother put me on the bicycle and sort of gave me a little push. I started pedaling and was cruising and feeling fine about this new experience. I kept going faster and faster, saying to myself all the time, "Wow, this is feeling pretty great. I'm really going to enjoy riding a bike.

There were three houses on this little field where we used to live, our's, my grandmother's and an old lady's called Miss Sisson, who we all thought was an old witch or something. She did look pretty horrible.

About the time I came to Miss Sisson's yard, my brother yelled at me from behind, telling me to pull off, which I did, not knowing she was there. My brother told me to put on the brakes and I tried, but, wow, the brakes wouldn't catch. Then it sounded like a crash, bam, boom, because I ran into the old lady as well as the chicken coop which was directly behind her. I killed about three or four hens, I'm certain. Feathers were flying and I started flying, also, all the way back home.

I was frightened I thought maybe the old lady was going to put some sort of spell on me. So, I hopped into bed and covered up my head thinking maybe she couldn't find me there.

The next day she complained to my mother about it. I made up some wacky story, saying that the old lady was probably dreaming, being she was so old and all. I knew, however, when mother was whipping me, she hadn't believed my crazy story. I suppose I need some practice telling tales so I won't get punished and still have fun.

Strokes: 1588
Words: 374
Sentences: 20

MISS SISSON AND MY FIRST BIKE RIDE

(12th Grade Level)

My first experience riding a bicycle is one I'll never forget. I wasn't brave enough to learn by trail and error, so I decided to allow by brother, an experienced rider and owner of three bicycles, to teach me.

After giving me detailed instructions on how to stop the bicycle, like pressing the pedals, etc., he placed me on the bicycle and gave me a little shove saying, "O.K., now I'm going to start you off and don't be a sissy."

Well, I started pedaling and the bike began moving, more and more rapidly until I was cruising along quite well. At this point, I was beginning to feel pretty confident, saying to myself, "Wow, this is feeling pretty good. I'm really going to enjoy riding a bike."

There are three houses on this little field where we used to live: our's, my grandmother's, and an old lady's called Miss Sisson, who we all thought was a witch or something because she looked so horrible.

About the time I reached MIss Sisson's yard, my brother yelled at me, telling me to pull off, which I did, not knowing Miss Sisson was standing there. I heard my brother in the background telling me to apply the brakes, and I tried, but the brakes wouldn't hold. I could feel a jolt as I ran into the old lady and a loud crash soon after I ran into the chicken coop, which was directly behind her.

Feathers were flying everywhere and I knew I had killed about three or four hens so, I decided I had better fly, too, all the way home, as fast as I could. I was so afraid that the old lady was going to put some sort of curse on me that I hopped into bed and covered up my head, thinking maybe she wouldn't be able to find me there.

When she complained to my mother about it the next day, I made up some ridiculous story, saying that the old lady was probably dreaming, being she was so old and senile. But I knew when mother was whipping me, she hadn't gone for that wacky story, so, I suppose I need some practice telling tales so I won't get punished and still enjoy myself.

Strokes: 1606
Words: 377
Sentences: 14

TRACY'S FOOT RACE

(4th Grade Level)

Mr. Polly was a principal who didn't like Blacks. He had always had it in for Tracy, a Black kid in the school who was always into something. Polly liked Tracy even less, though, just after the inner-city track meet in May. It was said that all the elementary school principals had bet money on their school. Also, Mr. Polly wanted the four foot trophy to add to the full trophy case in his office. Tracy was a sure bet. Everyone knew that nobody could outrun Tracy in the fourth and fifth grade entry.

Just before meet time, Mr. Polly called the little guy to his office and in his dixie twang said, "Now boy, I'm going to give you a chance to clear up your bad record here at my school. I'm going to give you a chance to make something of yourself. All you've got to do is bring me that big old trophy. Things will be different around here if you do, you hear?" "Yes sir," he said as he eyed the big white hand on his shoulder.

The gun went off, bang. Tracy took off for the wire, leaving the rest behind. When he was half the way down the track, Tracy was ahead by twenty yards. Mr. Polly was sure his school had won. He shouted, "Run boy, go get old Polly that trophy."

Tracy was ten yards from the wire. He was ahead by a mile. All of a sudden, he came to a halt. There he stood. All he had to do was take one step and he would win. The crowd was wild, and Polly was yelling his head off. Later that day he almost did, because Tracy calmly sat down and crossed his legs like a Indian in front of the finish line. Tracy had done it again. He smiled as he watched the runners go by one by one until he was the last one.

Even the Black kids didn't know by Tracy chose to lose, but Tracy did. If anyone had seen old Polly Cracker's face, they, too, would have known.

Strokes: 1417
Words: 353
Sentences: 28

TRACY'S FOOT RACE

(8th Grade Level)

Mr. Polly, a principal known for his racism and discrimination, had always had it in for Tracy, a Black mischievous kid in the school. His special dislike, however, began just after the inner-city track meet in May. It was rumored that all the elementary school principals had money riding on their schools, not to mention a four foot trophy which Mr. Polly had envisioned would adorn the already full trophy display case in his office. Tracy was a sure bet. Everyone knew that nobody could outrun Tracy in the fourth and fifth grade entry.

Just before meet time, Mr. Polly summoned the little demon to his office, and in a twang that is dixie said, "Now boy, I'm going to give you a chance to clean up your messy record here at my school and give you a chance to make something of yourself. All you got to do is bring me that big old trophy and things are going to be different around here, you hear?"

"Yes sir," he said as he looked suspiciously at the big white hand on his shoulder.

The gun went off, bang. Tracy took off for the wire, leaving a host of runners at what seemed like a stand-still. Halfway down the track Tracy was leading by twenty yards. Mr. Polly's face was a shrine of confidence as he shouted, "Run boy, go get old Polly that trophy."

Tracy was ten yards from the wire, leading the pack by a mile when suddenly he came to a halt. There he stood. All he had to do was take one step and be a winner. The crowd was wild and Polly was yelling his head off. Later that day he almost did because Tracy calmly sat down and crossed his legs Indian style right in front of the finish line. The little monster had once again lived up to his reputation as he sat, smiling and watching the runners go by one by one until he was dead last.

Even the Black kids didn't understand why Tracy chose to lose, but Tracy surely did. If any one had taken a look at Polly Cracker's face, they, too would have known.

Strokes: 1555
Words: 365
Sentences: 20

TRACY'S FOOT RACE

(12th Grade Level)

Mr. Polly, a principal who was infamous for his racism and discrimination, had always had it in for Tracy, a Black mischievous kid in the school; but, his special dislike begin right after the inner-city track meet in May. It was rumored that all the elementary school principals had money riding on their school, not to mention a four foot trophy which Mr. Polly had envisioned would adorn the already full trophy display case in his office. His hopes were high since Tracy was the fastest runner in the fourth and fifth grade entry and favored to win.

Just before meet time, Mr. Polly summoned the mischievous little guy into his office and said in that Southern drawl, "Now, boy, I'm going to give you a chance to clean up your messy record here at my school and give you a chance to make something of yourself. All you've got to do is bring me that big old trophy and things are going to be different around here, you hear?"

"Yes sir," he said as he looked suspiciously at the big white hand on his shoulder.

The gun fired with a deafening bang and Tracy raced for the wire, leaving a host of runners at what seemed like a stand-still. Halfway down the track, Tracy was leading by twenty yards. Mr. Polly's face was a shrine of confidence as he shouted, "Run boy, go get Polly that trophy."

Tracy was ten yards from the finish line, leading the other runners far behind when suddenly he stopped short and just stood there, needing only to take one step to be the winner. The crowd was hysterical and Polly was yelling his head off. He almost did later that day, because Tracy calmly plopped down and crossed his legs Indian style right in front of the finish line. The little monster had once again lived up to his reputation. He sat, grinning, as he watched the other contestants pass him one by one until he was dead last.

Even the Black kids didn't understand why Tracy chose to lose, but, Tracy certainly did. Had anyone noticed the look on old Polly Cracker's face, they, too, would have known.

Strokes: 1640
Words: 368
Sentences: 15

APPENDIX C

INSTRUCTIONS FOR THE AUTOMATED READABILITY INDEX, FLESCH READING EASE FORMULA AND FOG COUNT

This appendix contains the instructions for calculating reading difficulty levels of narrative material using the Automated Readability Index, the Flesch Reading East Formula, and the Fog Count. These instructions were used in the reliability study reported in section 4.

Instructions for Automated Readability Index (ARI)

The Automated Readability Index (ARI) is a method for determining the difficulty of written material. The ARI utilized three measures that are recorded on a counter as you type. The three measures are the number of strokes, the number of words, and the number of sentences. Only minor changes from standard typewriting are necessary. The following instructions will aid you in arriving at the ARI. Please record all data on the Tabulation Sheet. Do not mark on the Instruction Sheet but mark and write on Tabulation Sheet and other pages as you want.

I. Typing Instructions

1. When you have completed typing you must end with three measures:

   A. THE NUMBER OF STROKES
   B. THE NUMBER OF WORDS
   C. THE NUMBER OF SENTENCES

2. Getting the number of strokes is a simple task since every time you use a key a stroke is registered on the counter. Letters, symbols, and punctuation marks are included in the count of strokes. The spelling of a word is immaterial as long as it contains the proper number of letters.

   REMEMBER: YOUR TASK IS TO OBTAIN COUNTS AND ONLY THE COUNTING IS IMPORTANT.

3. Counting the words is done by counting the number of times the space bar is used. A few simple changes in typing are required for this.

   A. DO NOT DOUBLE SPACE AFTER A SENTENCE.
   B. DO NOT INDENT NEW PARAGRAPHS
   C. ALWAYS SPACE AFTER THE LAST WORD ON A LINE.

   REMEMBER: THE RESULTS MUST BE ACCURATE. DON'T BE AFRAID TO START OVER IF SOMETHING GOES WRONG. IF YOU START OVER, RESET THE COUNTER OR YOUR FINAL MEASURES WILL NOT BE ACCURATE.

4. Counting the sentences is done by pressing the right hand key on the top row (=). DON'T USE THIS KEY FOR ANY OTHER PURPOSE. When you have reached the end of a sentence, punctuate it according to the material being typed; then type = .

II. Computation Instructions

1. On the Tabulation Sheet record the number of strokes, the number of words, and the number of sentences as shown on the counter. Subtract the number of sentences from the number of strokes to get proper stroke count.

2. Obtain the Average Sentence Length.
   Divide the number of words by the number of sentences: $\frac{\text{words}}{\text{sentences}}$

   Do computations to 3 decimal places.

3. Obtain the Average Word Length.
   Divide the number of strokes by the number of words: $\frac{(\text{strokes})}{(\text{words})}$

   Do computations to 3 decimal places.

4. Compute the equation:

   ARI = Average Sentence Length + 9(Average Word Length)

5. Compute the Grade Level (G.L.) according to the following equation:

   G.L. = 0.50(Average Sentence Length) + 4.71(Average Word Length) - 21.43

Instructions for Fog Count

The Fog Count is a means of determining the difficulty of written material. Two measures must be recorded: (1) the number of easy elements; and (2) the number of polysyllables. An easy element can be pronounced in one or two sounds, for example, "like," "riding." Polysyllables have more than two sounds. "Difficulty" and "hospital" are two examples of polysyllables. The following instructions will aid you in arriving at a Fog Count. Record all necessary data on the Tabulation Sheet. Do not mark on Instruction Sheets but mark and write on Tabulation Sheet and other pages as you want.

I. HOW TO MAKE A FOG COUNT

1. Count the number of sentences.

   Treat any complete statement or thought as a sentence. In some contexts one word can be a sentence, as here:

   "Where's Tom?"
   "Flying."

   Don't rely on a period to tell you where a sentence ends. When taking a Fog Count, you may consider a semicolon as a period because it indicates the end of a complete thought; thus, the sentence that you are reading now may be counted as two sentences.

2. Count the number of easy elements and give them a value of 1.

3. Count the number of polysyllables and give them a value of 3.

IMPORTANT: Mark the value (1 or 3) you assign a word above it.
REMEMBER: Every word must have a value.

Study the following example:

```
1  1     3     1    1      1    1  1    1    1    1          3          1
To be usuable for this purpose, a war plan must define quantitatively the
  1      1      1    1    1    1       3        1   1     3
major wartime tasks, in terms of forces deployed, rates of operation,
 1    1   1     3       1       3       1    1  1   1     1     1  1
and rates of attrition and replacement, so that we may derive from it
 1      1       1   1     1        3        1   1     1         1
the required levels of support activities, such as training, supply,
    3           3                3
maintenance, procurement, and transportation.
```

4. Add the 1's and the 3's. This is the Total Fog Count.

   so in the example above:

   number of 1's = 40
   number of 3's = 10 (10 X 3 = 30)
   Total Fog Count = 40 + 30 = 70

5. Find the Average Fog Count.

   Divide the Total Fog Count (#4) by the number of sentences.

6. Convert to a Grade Level (G.L.).

   A. If the Average Fog Count is 20 or more divide by 2.
   B. If the Average Fog Count is under 20, subtract 2 and then divide by 2. The result is the appropriate Grade Level.

II. PROBLEMS IN MAKING A FOG COUNT

1. Names of persons. A proper name is only given the value of 1. Common titles (such as Mr., Miss, General) are considered part of the proper name and are not given a value. That is, the common title and the proper name are combined and receive a value of 1. Uncommon titles are considered apart from the proper name and receive a value of 3. Note the following examples:

   1
   Dave B. Lucas

   1
   Miss Ruth Smith

   1
   General Eisenhower

   3 1
   Commissar Harry M. Raines

2. Numbers. The Fog Count treats all numbers, regardless of size, as easy elements. Therefore, all numbers receive a value of 1. Dollars, cent, and percent symbols are considered part of the number with which they are written. Study the following examples:

   1
   38%

   1
   547

   1
   $9.50

   1
   eighty-eight

3. Abbreviations. Many abbreviations have gained wide use and acceptance among people. Such common abbreviations usually stand for an easy element and receive a value of 1. Some examples: YMCA, USAF.

Instructions for Flesch Reading Ease Score

The Flesch Reading Ease formula is a method of determining the difficulty of written material. Ths Flesch Reading Ease formula uses two measures: (1) average number of words in a sentence; and (2) word length expressed in the number of syllables per 100 words. The following instructions will aid you in arriving at a Flesch Reading Ease score. Please put all data on the Tabulation Sheet. Do not mark on the Instruction Sheets but mark and write on Tabulation Sheet and other pages as you want.

1. Count the number of words.

   Count as a word any numbers, letters, symbols, groups of letters surrounded by white spaces. Hyphenated words and contractions count as one word. For example, each of the following count as one word:

   couldn't
   F.O.B.
   i.e.
   32,008
   second-grade

2. Count the number of sentences.

   Count as sentences each unit of thought that can be considered grammatically independent of another sentence or clause. A period, question mark, exclamation point, semi-colon, and colon usually denote independent clauses. Sentence fragments and incomplete sentences are counted as a sentence. Study the following examples:

   "Where did he go?" "Home." (count as 2 sentences)

   The equipment is old because: a. It was issued several years ago. b. It needs constant repair. (count as 3 sentences) c. We have no spare parts for it.

   But the following sentence counts as 1 because the words after the colon are not complete sentences.

   Three ships met at the appointed hour: Cario, Scott Fitzgerald, and the William James.

3. Count the number of syllables.

   Count syllables the way you pronounce the word: for example,

"row"	1 syllable
"maintain"	2 syllables
"dictionary"	4 syllables

   With symbols and figures the syllables are known by the way they are normally pronounced, for example,

¢ (cent)	1 syllable
R.F.D.	3 syllables
1918 (nineteen eighteen)	4 syllables

If there is any doubt about syllables, consult a dictionary. One is provided for your use and convenience.

4. Find the Average Sentence Length.

   Divide the number of words by the number of sentences: $\frac{\text{(words)}}{\text{(sentences)}}$

5. Find the Average Number of Syllables per 100 words.

   Divide the number of syllables by the number of words and multiply by 100:

   $$\frac{\text{syllables}}{\text{words}} \times 100$$

6. Compute the formula.

   Combine the Average Sentence Length and the Average Number of Syllables per 100 Words into the following equation:

   Flesch Reading Ease = 206.835 - Average Sentence Length (1.015) - Average Number of Syllables per 100 Words (.846)

7. Find the corresponding Grade Level accroding to the chart below:

Reading Ease Score	Grade Level
Above 100	Below 5th
90 - 100	5th
80 - 90	6th
70 - 80	7th
60 - 70	8th - 9th
50 - 60	10th - 12th (high school)
30 - 50	13th - 16th (college)
0 - 30	College Graduate

APPENDIX D

DESCRIPTION OF CONSTRUCTION OF AUTOMATED READABILITY

INDEX EQUIPMENT

This appendix contains the wiring diagram for the typing complexity tabulation (Figure 1) as well as pictures of the locations for the mounting of the three micro-switches in the typewriter. Also shown is a picture of both pieces of equipment (the typewriter and the typing complexity tabulator) hooked together.

TYPING COMPLEXITY TABULATOR

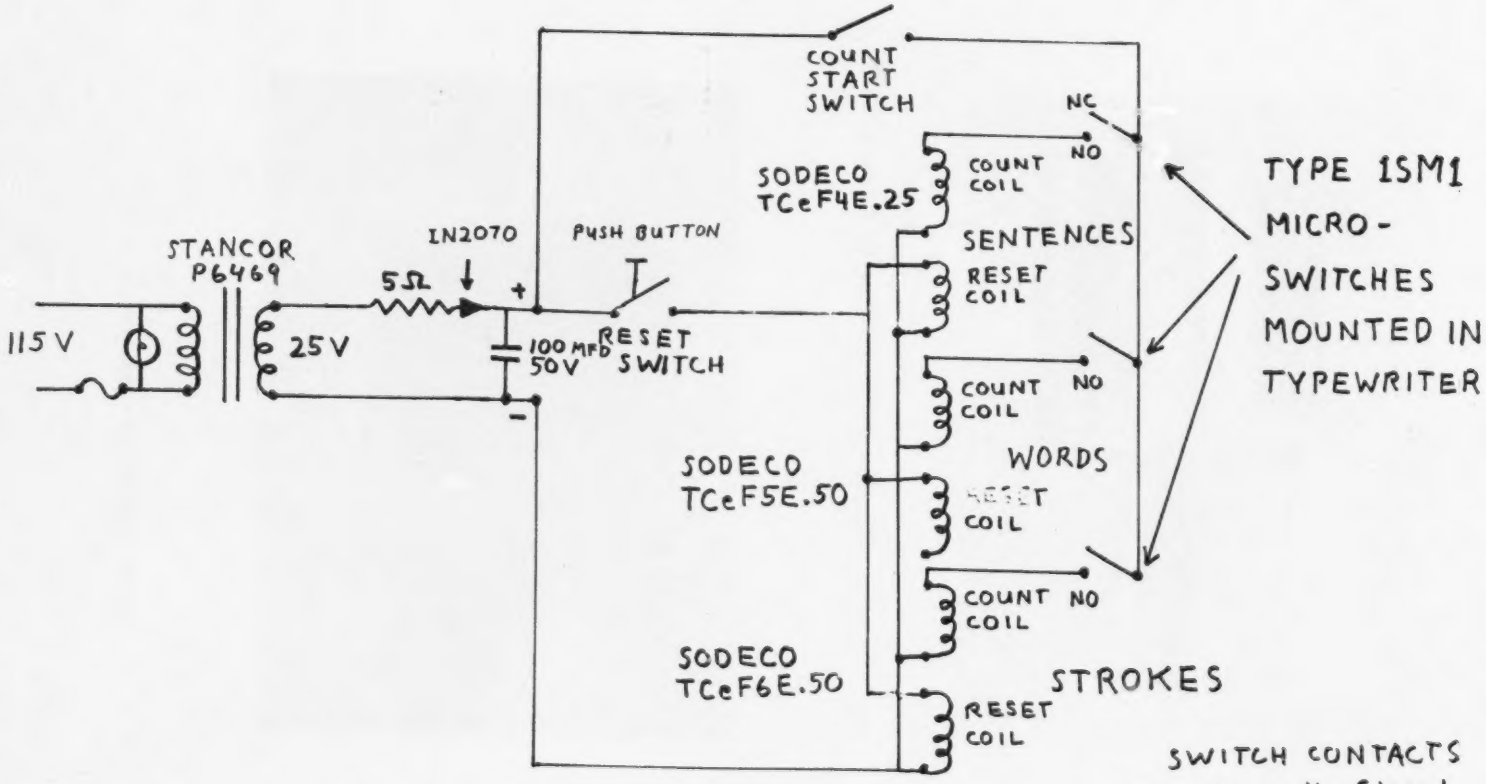

Fig.1. Wiring diagram of typing complexity tabulator. Typewriter used is IBM Selectric Model Typewriter, Model 721.
Sodeco counters are available from: Landis & Gyr, Inc.; 45 West 45th Street; New York, 36, New York. Switches mounted in typewriter are available from Micro-Switch Company

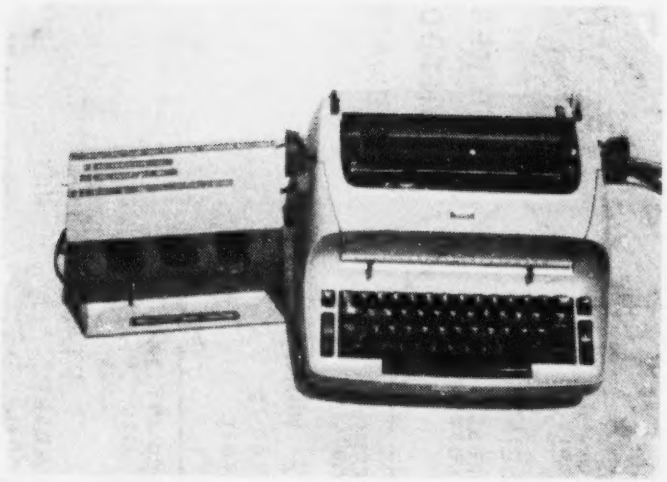

Fig. 2. Typewriter and typing complexity tabulator.

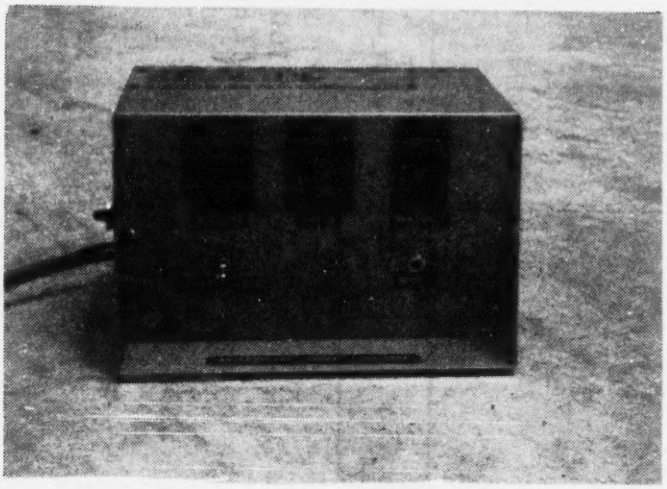

Fig. 3. Typing Complexity tabulator.

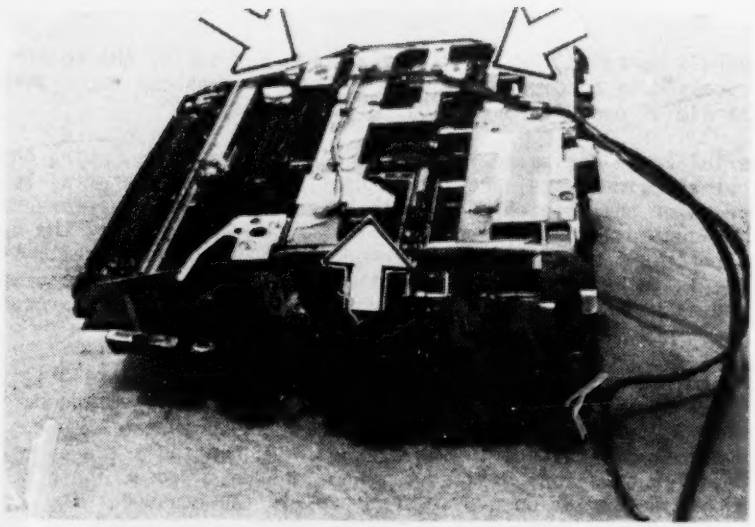

Fig. 4. Placement of microswitches in typewriter for pickup for strokes count, words count and sentence count. Microswitches are mounted on aluminum brackets.

APPENDIX E

FORTRAN IV COMPUTER PROGRAM AND INSTRUCTIONS FOR TAKING AUTOMATED READABILITY INDEX COUNTS ON COMPUTER

This appendix contains the FORTRAN IV program for taking ARI counts as narrative material is processed by a computer as well as instructions for the program. Also shown is an example of computer output using the program.

The material to be evaluated is punched on standard cards, using only columns 6 - 76. (The other columns are used for control codes.) The material is punched just as it appears on the printed page, with three exceptions: paragraphs are not indented; no hyphenated words may appear at the end of a line; and, the terminal punctuation mark for all sentences is a period followed by two spaces. If more than one passage is to be evaluated at one time an additional card is prepared after the last card of each passage with the number "9" in Column 5. This resets the program.

In the Automated Readability Index, three sources of data are utilized to arrive at the Grade Level of the material: Average Sentence Length, Average Word Length, and the Number of Sentences. The Average Sentence Length is the number of words divided by the number of sentences. The Average Word Length is the number of strokes (letters, numbers, punctuation) divided by the number of words. The Number of Sentences is a simple tabulation of the sentences in the passage. The Number of Strokes is a tabulation of the number of columns used to each card (75) less the number of blanks on the cards. The number of words is a tabulation of the number of blanks. The number of sentences is tabulated by counting all periods followed by two blanks.

The Grade Level is computed using the formula GL = .5(ASL) + 4.71 (AWL) - 21.43.

Upon completion of the computation, the computer prints out the passage just as it appears on the cards, the Average Word Length, the Average Sentence Length, the Number of Sentences, and the Grade Level of the material. An identifying label, or heading, may also be printed at the beginning of the passage. This label will not be counted in the computation of the Grade Level. It is necessary, however, that either a label or a blank card be inserted in the beginning of the deck.

FORTRAN COMPUTER PROGRAM FOR CALCULATING ARI GRADE LEVELS

```
FORTRAN IV G LEVEL 19                    MAIN              DATE = 71097          10/13/49

0001                  DIMENSION A(75)
0002                  DATA M,PZIM ,IM,/
0003            10    READ(5,100,END=99)  A
0004                  WRITE(6,1000) A
0005            1000  FORMAT('1',75A1//)
0006                  ISTRK=0
0007                  I=MO=0
0008                  ISENT=0
0009            1     READ(5,101,END=999)K,A
0010                  IF(K-9)2,50,2
0011            2     DO 5 I=1,75
0012                   IF(A(I).EQ.M.AND.A(I+1).EQ.M) ISNO=ISNO+1
0013                  IF(A(I).EQ.P.OR.A(I+1).EQ.M.AND.A(I+2).EQ.M)  GO TO 7
0014                  IF(A(I).EQ.P.AND.A(I+1).EQ.M.AND.A(I+2).EQ.M) ISENT=ISENT+1
0015            5     CONTINUE
0016            7     ISTRK=ISTRK+I+1
0017                  WRITE(6,111) (A(J),J=1,I)
0018                  GO TO 1
0019            50    CONTINUE
0020                  STRKS=ISTRK -ISNO -ISENT
0021                  SENT=ISENT
0022                  WRITE(6,222) STRKS,WORDS,SENT
0023                  AVSL=STRKS/WORDS
0024                  SENTL=WORDS/SENT
0025                  GL=.5885*AVSL+.3*SENTL-21.43
0026                  WRITE(6,200) AVSL,SENTL
0027                  WRITE(6,300) GL
0028                  GO TO 10
0029            100   FORMAT(4X,11,75A1)
0030            111   FORMAT('0',75,70A1)
0031            200   FORMAT(5X,'AVERAGE WORD LENGTH  ',F12.5,'  AVERAGE SENTENCE LENGTH
                     1',F12.6)
0032            222   FORMAT(////5X,'NO. OF STROKES=',F6.0,5X,'NO. OF WORDS=',F6.0,/5
                     1X,'NO. OF SENTENCES=',F6.1//)
0033            300   FORMAT(//5X,'GRADE LEVEL =',F12.6)
0034            999   STOP
0035                  END
```

COMPUTER OUTPUT SHOWING ARI GRADE LEVEL OF NARRATIVE MATERIAL

```
 IT IS TRUE - A TRUE S

 [illegible] IRONY. IN THE CHRISTMAS, IS SUBTLE, INTELLECTUAL, AND
SUGGESTIVE.  IT IS POSITIVE IN ITS INSINUATION OF ACTUAL REASONS
FOR [illegible] PREJUDICE AGAINST ROMAN CATHOLICS: IT IS TIRELESSLY
ALERT AND ADJUSTS ITSELF DELICATELY TO EVERY MOVE OF THE OPPOSITION
AGAINST IT: IT IS SUGGESTIVE OF NEW IDEAS, AND NOT ONLY TAKES THE
READER SEE THE ANSWERS OF SOME TIME-HONORED PREJUDICES, BUT HINTS AT ITS
EXPLANATION AND IS READY WITH A NEW OPINION TO TAKE ITS PLACE.  IN
THESE, TOO, IT IS VERY DIFFERENT FROM SWIFT'S IRONY: IT IS NOT FURIOUS
AND DELIBERATELY SAVAGE, BUT MORE LIKE THE BEST FRENCH IRONY-
SELF-POSSESSED, SUAVE, AND DELICATE.  BENNAU ADDRESSES HIMSELF WITH
[illegible] SKILL TO THE PREJUDICES OF THOSE WHOM HE IS TRYING TO
CONVINCE, AND CARRIES HIS READERS WITH HIM IN A WAY THAT SWIFT HAS TOO
[illegible] SECTIONS TO ATTEMPT AT.  BENNAU'S IRONY WINS THE WAVERING, WHILE IT
REBUKES THE HOSTILE.  THIS IS THE DOUBLE TASK IT PROPOSES TO ITSELF.

NO. OF STROKES     762.     NO. OF WORDS     156.     NO. OF SENTENCES      6.

AVERAGE WORD LENGTH     4.884615  AVERAGE SENTENCE LENGTH    26.000000

GRADE LEVEL =   14.576548
```

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